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| 09/606,040 | 06/29/2000 | Hans Sigrist | CSEM:060 | 7669 |

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| EXAMINER |
|---|
| CHAKRABARTI, ARUN K |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1634 | 13 |

DATE MAILED: 10/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. 09/606,040 | Applicant(s) SIGRIST ET AL. | |
|---|---|---|---|
| | Examiner Arun Chakrabarti | Art Unit 1634 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 September 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-11 and 16-20* is/are pending in the application.

4a) Of the above claim(s) *11-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 16-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Detailed Action* .

## DETAILED ACTION

### *Specification*

1. Claims 12-15 have been withdrawn from consideration and therefore not examined.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CAR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-11, and 16-20 are rejected under 35 U.S.C. 103(a) over Miyasaka et al. (U.S. Patent 5,154,808) (October 13, 1992) in view of Mazid et al. (U.S. Patent 5,308,460) (May 3, 1994).

Miyasaka et al teach a process for the preparation of a carbohydrate on a material surface by photochemically fixing one or more different compounds onto the material surface and by using the azide electron withdrawing groups (Column 2, line 39 to Column 6, line 38, and Claims 1-2).

Miyasaka et al teach the compounds used for the immobilization, which has the limitations of the claimed invention (Column 3, line 25 to Column 6, line 18).

Miyasaka et al teach the process of immobilization by the irradiation of light in detail (Column 8, lines 44-66).

Miyasaka et al teach the bioactive proteins constituting the solid support of the invention including enzymes (Column 9, lines 45-54).

Miyasaka et al teach a process, wherein X is the radical of a disaccharide (Claim 13).

Miyasaka et al teach a process, wherein R is linear C2-C24-alkylene (Claim 13).

Miyasaka et al teach a process, wherein R1 is fluorine and n is an integer from 0 to 4 (Claim 13).

Miyasaka et al do not teach a process of attaching enzymatically one or more further carbohydrates to the X radicals of the modified surface.

Mazid et al teach a process of attaching enzymatically one or more further carbohydrates to the X radicals of the modified surface (Abstract, Column 2, lines 43-62, and Claims 1-9, and Examples 1-4).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine and substitute a process of attaching enzymatically one or more further carbohydrates to the X radicals of the modified surface of Mazid et al. in the method of Miyasaka et al, since Mazid et al. state, "Hence, it is of interest to provide highly sensitive and convenient methods for the utilization of carbohydrate-modifying enzymes in oligosaccharide synthesis. Such highly sensitive and convenient methods would have a number of uses that are difficult, expensive or impossible, to achieve using currently available techniques. These uses include the detection and purification of carbohydrate products having natural or unnatural structures. For the sake of convenience and economy, it is also of interest to provide for the repeated use of enzyme preparations for carbohydrate synthesis and detection (Column 2, lines 47 to 59)." By employing scientific reasoning, an ordinary practitioner would have been motivated to combine and substitute a process of attaching enzymatically one or more further carbohydrates to the X radicals of the modified surface of Mazid et al. in the method of Miyasaka et al, in order to improve the process for producing a functional organic thin film and in order to achieve the express advantages, as noted by Mazid et al., of an invention which provides highly sensitive and convenient methods for the utilization of carbohydrate-modifying enzymes in oligosaccharide synthesis, which would have a number of uses that are difficult, expensive or impossible, to achieve using currently available techniques and which includes the detection and purification of carbohydrate products having natural or unnatural structures and for the sake of

convenience and economy, which is also of interest to provide for the repeated use of enzyme preparations for carbohydrate synthesis and detection.

***Response to Arguments***

4. In response to argument, 112(second paragraph) rejection has been withdrawn and art rejection discussion of "Comanor et al." have been withdrawn.

Applicant's arguments with respect to all pending claims have been considered but are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., (I) diazirine-modified carbohydrate and not carbene-generating entities are used in the method and (ii) surface-immobilized enzyme substrates are recognized as enzyme substrates by carbohydrate-modufying enzymes such as glycosyltransferase) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In view of the response to argument, 103(a) rejection has been properly maintained.

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arun Chakrabarti, Ph.D., whose telephone number is (703) 306-5818. The examiner can normally be reached on 7:00 AM-4:30 PM from Monday to Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones, can be reached on (703) 308-1152. The fax phone number for this Group is (703) 305-7401.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group analyst Chantae Dessau, whose telephone number is (703) 605-1237.

Arun Chakrabarti,

Patent Examiner,

October 3, 2002

W. Gary Jones
Supervisory Patent Examiner
Technology Center 1600